AMENDED SPECIFICATION

Reprinted as amended in accordance with the Decision of the Superintending Examiner, acting for the Comptroller-General, dated the ninth day of October, 1942, under Section 26 of the Patents and Designs Acts, 1907 to 1942.

PATENT SPECIFICATION

Application Date: April 5, 1939. No. 10634/39.

Complete Specification Left: May 6, 1940.

Complete Specification Accepted: Oct. 4, 1940.

527,259

PROVISIONAL SPECIFICATION

Improvements in or relating to Filters

I, CHARLES SAMUEL GARLAND, a British subject, of 38, Ingate Place, Battersea, London, S.W.8, do hereby declare the nature of this invention to be as follows:—

This invention relates to filters for oils and similar liquids and has for its object to provide an improved construction and arrangement of the kind wherein matter in suspension is removed from a liquid under treatment by forcing such liquid through a number of closely interspaced elements mounted in the form of a column.

In such filters it has been proposed to form the filtering elements from metal rings having excresences or depressions pressed out of their surfaces so that on assembly by superimposition of the rings a number of small spaces or cells are formed between the rings in which the solid matter can accumulate.

In order to avoid the waste of metal in forming a filter pack from a number of separate rings the present invention provides a filter element constructed by forming a series of depressions in a flat strip of metal and by coiling the strip thus treated into a helical shape to form the superimposed filtering elements.

In carrying the invention into effect and in the preferred manner a filter pack is formed from a flat strip of metal which is given a series of partially circular recesses or depressions alternating with unaltered parts. The strip thus treated is wound into helical form with the open sides of the depressions facing inwards and a continuous outer edge. This element can be placed under compression to bring the helical coils into close contact and a device produced which is operatively identical with that constituted hitherto by an assembly of separate rings.

Dated this 5th day of April, 1939.
HERON ROGERS & CO.,
Agents for Applicant,
Bridge House,
181, Queen Victoria Street, London,
E.C.4.

COMPLETE SPECIFICATION

Improvements in or relating to Filters

I, CHARLES SAMUEL GARLAND, a British subject, of 38, Ingate Place, Battersea, London, S.W.8, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:

This invention relates to filters for oils and similar liquids and has for its object to provide an improved construction and arrangement of the kind wherein matter in suspension is removed from a liquid under treatment by forcing such liquid through a number of closely interspaced elements mounted in the form of a column.

There have been earlier proposals to manufacture filters of this character, in one of which a deformed wire, either alone or associated with an undeformed wire is helically wound upon a support and in the other a round wire is rolled into a thin ribbon having transverse ribs and similarly wound upon a support. It has also been proposed to form the filtering elements from metal rings having excrescences or depressions pressed out of their surfaces

[Price 1/-]

so that on assembly by superimposition of the rings a number of small spaces or cells are formed between the rings in which the solid matter can accumulate.

In order to avoid the waste of metal by forming a filter pack from a number of separate rings the present invention consists in the manufacture of a filter wherein a flat strip of metal is given a series of partially circular recesses or depressions alternating with unaltered parts, the strip thus treated being wound into helical form with the open sides of the depressions facing inwards and a continuous outer edge.

Reference will now be made to the accompanying drawings which illustrate the construction and mode of use of a filter element according to the invention and in which:—

Fig. 1 is a plan of the metal strip showing the formation of the depressions,

Fig. 2 is an elevation of the strip shown in Fig. 1,

Fig. 3 is a perspective view showing the strip illustrated in Figs. 1 and 2 coiled to form a filter element,

Fig. 4 is a part sectional elevation of a filtering apparatus embodying filtering elements as shown in Fig. 3, and

Fig. 5 is a perspective view of another form of filter element.

A filter element according to the invention is formed from a flat strip of metal *a* which is given a series of partially circular depressions or recesses *b* which alternate with unaltered portions *c*. One edge of the strip remains unaltered and the recesses *b* open on the opposite edge. The strip thus treated is wound into helical form with the open sides of the depressions facing inwards and a continuous outer edge *d*. As the formation of the depressions tends to stretch the edge *d* their formation assists the coiling of the strip into the form shown in Fig. 3.

The filter element formed as above described is placed under compression for operative use and may conveniently be employed in the manner illustrated in Fig. 4 wherein the coiled strip is mounted around a central fluted rod *e* above a flange or collar at the base of the rod. The coils of the strip are forced into close contact and held in such relationship by springs *f* and nuts *g* and the completed unit is operatively identical with one as constituted hitherto by an assembly of separate rings or discs. In the assembly illustrated in Fig. 4, the oil to be filtered enters from the exterior of the assembly through a number of small apertures *h* formed between adjacent surfaces of the coiled strip and each bounded at its sides by the walls of the depressions which themselves form pockets in the inner portion of the filter element for the reception of solid matter deposited from the oil or other liquid treated.

In the arrangement shown in Fig. 5, the filter element is shown as constructed from a length *i* of flat strip metal in which the depressions *k* are closely associated so that when the filter element is compressed into an operative condition similarly to that shown in Fig. 4, the projections formed on the underside of the strip by the depressions form between them apertures whose inner orifices are much smaller than their external orifices thereby forming effective traps for small particles of solid matter.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A filter wherein a flat strip of metal is given a series of partially circular recesses or depressions alternating with unaltered parts, the strip thus treated being wound into helical form with the open sides of the depressions facing inwards and a continuous outer edge.

2. A filter for oils and similar liquids embodying a plurality of filtering elements according to Claim 1, said elements being placed under compression to bring the adjacent turns of the helical coils into close contact and form a large number of small apertures between the said depressions through which the oil to be cleansed is passed.

3. A filter element constructed and arranged substantially as described with reference to the accompanying drawings.

Dated this 6th day of May, 1940.

HERON ROGERS & CO.,
Agents for Applicant,
Bridge House,
181, Queen Victoria Street, London,
E.C.4.

Leamington Spa: Printed for His Majesty's Stationery Office, by the Courier Press.—1942.

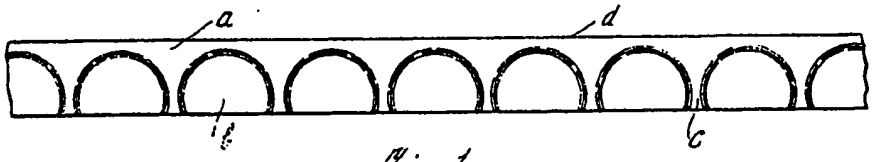

Fig. 1.

Fig. 2.

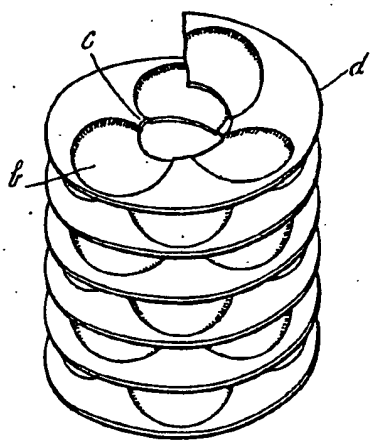

Fig. 3.

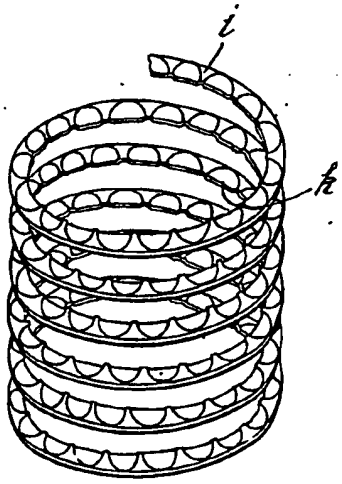

Fig. 5.

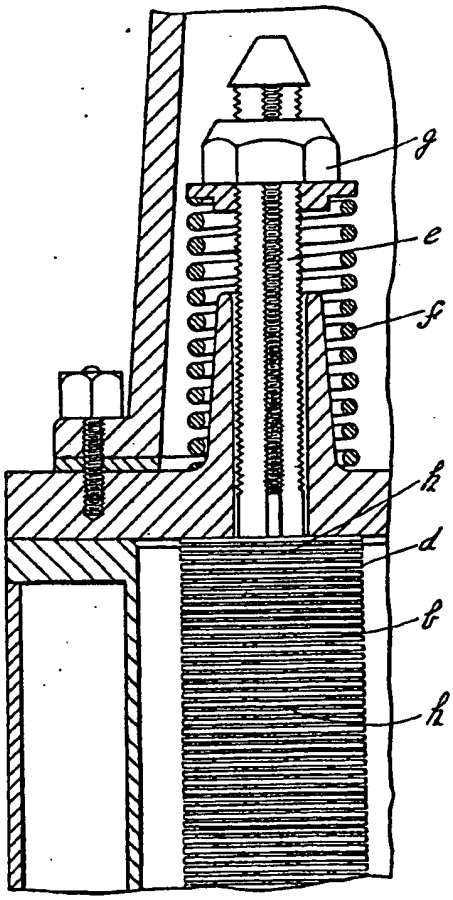

Fig. 4.

Malby & Sons, Photo.-Lith.